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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,318	03/02/2005	Shigeharu Hashimoto	120830	5172
25944	7590	09/21/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			TRAN, DIEM T	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

TAKA

**Office Action Summary**

Application No.

10/505,318

Applicant(s)

HASHIMOTO ET AL.

Examiner

Diem Tran

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 24-27 is/are allowed.
- 6) ☒ Claim(s) 15-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claims 15-17, 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pitcher, Jr. (US Patent 4,417,908).***

Regarding claims 15, 16, 21, Pitcher, Jr. discloses an exhaust emission control system comprising:

an internal combustion engine; a filter for capturing particulate matters in an exhaust gas exhausted from the internal combustion engine (see col. 10, lines 16-19); and an exhaust pipe for introducing the exhaust gas into the filter, the system comprising combustion means for intermittently burning the particulate matters captured by the filter (see col. 10, lines 64-68), the filter being a honeycomb filter including at least two end faces; porous partition walls extending from one end face to the other end face; and a large number of through channels partitioned by the partition walls and extending from one end face through the other end face, predetermined through channels being sealed in one end face, remaining predetermined through channel being sealed in the other end face (see Figures 1b, 18), wherein a partition wall thickness (X) of the filter is about 250-760  $\mu\text{m}$ , and the number of through channels per unit area (Y) in a section of the filter is about 1.5 to 46.5 cell/ $\text{cm}^2$  (see col. 11, lines 27-38); however, fails to disclose that X and Y fall within a range surrounded by straight lines connecting points A3 (X is 330, Y is 42.7),

Art Unit: 3748

B3 (X is 356, Y is 34.9), C3 (X is 406, Y is 34.9), and D3 (X is 381, Y is 42.7) in this order in FIG. 1.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide specific optimum ranges of the wall thickness and number of cells in the filter, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 17, Pitcher, Jr. further discloses that the combustion means includes exhaust gas temperature raising means for raising a temperature of the exhaust gas in such a manner as to start the burning of the particulate matters captured by the filter (see col. 10, lines 64-68, col. 11, lines 1-13).

Regarding claim 22, Pitcher, Jr. further discloses that the filter contains a ceramic material as a main component (see col. 11, lines 50-59).

Regarding claim 23, Pitcher, Jr. further discloses that the filter is constituted by integration of a plurality of segments of a honeycomb structure (see col. 11, lines 27-29).

***Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pitcher, Jr. (US Patent 4,417,908) in view of Kamihara (US Patent 5,193,340).***

Regarding claim 18, Pitcher, Jr. discloses all the claimed limitations as discussed in claim 17 above, however, fails to disclose that the exhaust gas temperature-raising means includes an adjustment device for adjusting a time to supply fuel to the internal combustion engine.

Kamihara teaches that it is conventional in the art, to supply the fuel at exhaust stroke of the

engine to raise up the exhaust gas temperature for regenerating of the filter (see col. 4, lines 55-61).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the teaching of Kamihara in the Pitcher, Jr. system, since the use thereof would have provided an effective means to regenerate the filter.

*Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pitcher, Jr. (US Patent 4,417,908) in view of Hicks et al. (US Patent 4,462,208).*

Regarding claim 19, Pitcher, Jr. discloses all the claimed limitations as discussed in claim 17 above, however, fails to disclose that the exhaust gas temperature raising means includes a supply device for supplying the fuel into the exhaust pipe. Hicks teaches that it is conventional in the art, to supply the fuel into the exhaust pipe to raise the exhaust gas temperature (see col. 1, lines 24-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the teaching of Hicks in the Pitcher, Jr. system, since the use thereof would have provided an effective means to regenerate the filter.

Regarding claim 20, Pitcher, Jr. discloses all the claimed limitations as discussed in claim 15 above, however, fails to disclose means for lowering the burning temperature of the particulate matters captured by the filter. Hicks teaches that it is conventional in the art, to lower the burning temperature of the particulate matters captured by the filter by adding an agent to the fuel (see col. 2, lines 21-27).

It would have been obvious to one having ordinary skill in the art at the time the

Art Unit: 3748

invention was made, to have utilized the teaching of Hicks in the Pitcher, Jr. system, since the use thereof would have saved fuel by lowering the ignition temperature of trapped soot.

*Allowable Subject Matter*

Claims 24-27 are allowed.

*Conclusion*

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (571) 272-4866. The examiner can normally be reached on Monday -Friday from 8:30 a.m.- 5:00p.m.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (571) 272-4859. The fax number for this group is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 800-786-9199 (toll-free).



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Patent Examiner  
Art unit 3748

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